AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

Claim 1. (Currently Amended) A supported or self-supporting electrochemical transistor device comprising:

- a source contact,

- a drain contact,

~~- at least one gate electrode,~~

- an electrochemically active element arranged between, and in direct electrical contact with, the source and drain contacts, which electrochemically active element comprises a transistor channel and is of a material comprising an organic material having the ability of electrochemically altering its electrical conductivity through change of redox state thereof,

- a first gate electrode and a second gate electrode, which are separated from each other and from the electrochemically active element, and

- a solidified electrolyte in direct electrical contact with the electrochemically active element and said two gate electrodes,

such that flow of electrons between source contact and drain contact is controllable by means of a voltage applied between to said two gate electrodes.

Claim 2. (Previously Presented) The electrochemical transistor device according to claim 1, wherein the said source and drain contacts, gate electrode(s) and electrochemically active element are arranged in one common plane.

Claim 3. (Previously Presented) The electrochemical transistor device according to claim 2, wherein a continuous or interrupted layer of the solidified electrolyte covers the electrochemically active element and covers at least partially the gate electrode(s).

Claim 4. (Previously Presented) The electrochemical transistor device according to claim 1, wherein at least one of said source and drain contacts and gate electrode(s) is formed from the same material as the electrochemically active element.

Claim 5. (Previously Presented) The electrochemical transistor device according to claim 4, wherein all of the said source and drain contacts and gate electrode(s) are formed from the same material as the electrochemically active element.

Claim 6. (Previously Presented) The electrochemical transistor device according to claim 4, wherein the source and drain contacts and the electrochemically active element are formed from a continuous piece the material comprising an organic material.

Claim 7. (Previously Presented) The electrochemical transistor device according to claim 1, wherein the transistor channel retains its redox state upon removal of the gate voltage.

Claim 8. (Previously Presented) The electrochemical transistor device according to claim 1, wherein the transistor channel spontaneously returns to its initial redox state upon removal of the gate voltage.

Claim 9. (Previously Presented) The electrochemical transistor device according to claim 8, wherein the electrochemically active element further comprises a redox sink volume adjacent to the transistor channel, and wherein the electrochemical transistor device further comprises at least two gate electrodes arranged on opposite sides of the electrochemically active element so that one gate electrochemically active element so that one gate electrode is closer to the transistor channel and one gate electrode is closer to the redox sink volume.

Claim 10. (Previously Presented) The electrochemical transistor device according to claim 1, wherein the organic material is a polymer material.

Claim 11. (Previously Presented) The electrochemical transistor device according to claim 10, wherein the polymer material is selected from the group consisting of polythiophenes, polypyrroles, polyanilines, polyisothianaphtalenes, polyphenylene vinylenes and copolymers thereof.

Claim 12. (Previously Presented) The electrochemical transistor device according to claim 11, wherein the polymer material is a polymer or copolymer of a 3,4-dialkoxythiophene, wherein the two alkoxy groups may be the same or different or together represent an optionally substituted oxy-alkylene-oxy bridge.

Claim 13. (Previously Presented) The electrochemical transistor device according to claim 12, wherein the polymer or copolymer of a 3,4-dialkoxythiophene is selected from the group consisting of poly(3,4-methylenedioxythiophene), poly(3,4-ethylenedioxythiophene, poly(3,4-propylenedioxythiophene), and poly(3,4-butylenedioxythiophene).

Claim 14. (Previously Presented) The electrochemical transistor device according to claim 1, wherein the organic material further comprises a polyanion compound.

Claim 15. (Previously Presented) The electrochemical transistor device according to claim 14, wherein the polyanion compound is poly(styrene sulkphonc acid) or a salt thereof.

Claim 16. (Previously Presented) The electrochemical transistor device according to claim 1, wherein the solidified electrolyte comprises a binder.

Claim 17. (Previously Presented) The electrochemical transistor device according to claim 16, wherein the binder is a gelling agent selected from the group consisting of gelatine, a gelatine derivative, polyacrylic acid, polymethacrylic acid, poly(vinylpyrrolidone), polysaccharides, polyacrylamides, polyurethanes, polypropylene oxides, polyethylene oxides, poly(styrene sulphonic acid) and poly(vinyl alcohol), and salts and copolymers thereof.

Claim 18. (Previously Presented) The electrochemical transistor device according to claim 1, wherein the solidified electrolyte comprises an ionic salt.

Claim 19. (Previously Presented) The electrochemical transistor device according to claim 1, wherein the electrochemical transistor device is self-supporting.

Claim 20. (Previously Presented) The electrochemical transistor device according to claim 1, wherein the electrochemical transistor device is arranged on a support.

Claim 21. (Previously Presented) The electrochemical transistor device according to claim 20, wherein the support is selected from the group consisting of polyethylene terephthalate, polyethylene naphthalene dicarboxylate, polyethylene,

polypropylene, polycarbonate, paper, coated paper, resin-coated paper, paper laminates, paperboard, corrugated board and glass.

Claim 22. (Previously Presented) A process for the production of a supported electrochemical transistor device comprising the steps of:

- forming a source contact,

- forming a drain contact,

- forming at least one gate electrode,

- forming an electrochemically active element arranged between, and in direct electrical contact with the source and drain contacts, wherein said electrochemically active element comprises a transistor channel and is of a material comprising an organic material having the ability of electrochemically altering its electrical conductivity through change of redox state thereof,

- forming a first gate electrode and a second gate electrode, which are separated from each other and from the electrochemically active element, and

- forming a solidified electrolyte in direct electrical contact with the electrochemically active element and said first and second gate electrodes,

wherein said contacts, electrodes, and electrochemically active element are deposited directly onto a support.

Claim 23. (Previously Presented) The process according to claim 22, wherein the contacts, electrode(s), electrochemically active element and/or electrolyte are deposited by means of printing techniques.

Claim 24. (Previously Presented) The process according to claim 22, wherein the contacts, electrode(s), electrochemically active element and/or electrolyte are deposited by means of coating techniques.

Claim 25. (Previously Presented) The process according to claim 22, wherein the organic material comprises a polymer, wherein the polymer is deposited on the support through *in situ* polymerisation.

Claim 26. (Previously Presented) The process according to claim 22, comprising patterning of any one of the contacts, electrode(s) and electrochemically active element using a subtractive method.

Claim 27. (Previously Presented) The process according to claim 26, wherein the patterning is performed through chemical etching.

Claim 28. (Previously Presented) The process according to claim 26, wherein the patterning is performed through gas etching.

Claim 29. (Previously Presented) The process according to claim 26, wherein the patterning is performed by mechanical means selected from the group consisting of scratching, scoring, scraping and milling.

Claim 30. (Canceled)

Claim 31. (Previously Presented) The electrochemical transistor device according to claim 5, wherein the source and drain contacts and the electrochemically active element are formed from a continuous piece of said material comprising an organic material.

Claim 32. (Previously Presented) The process according to claim 23, wherein the organic material comprises a polymer, wherein said polymer is deposited on a support through *in situ* polymerisation.

Claim 33. (Previously Presented) The process according to claim 24, wherein the organic material comprises a polymer, wherein said polymer is deposited on a support through *in situ* polymerisation.

Claim 34. (Previously Presented) The process according to claim 23, comprising patterning of any one of said contacts, electrode(s) and electrochemically active element using a subtractive method.

Claim 35. (Previously Presented) The process according to claim 24, comprising patterning of any one of said contacts, electrode(s) and electrochemically active element using a subtractive method.

Claim 36. (Previously Presented) The supported or self-supporting electrochemical transistor device according to claim 1, wherein the electrochemically active element further comprises a redox sink volume, and wherein the first gate

electrode is associated with the transistor channel and the second gate electrode is associated with the redox sink volume.

Claim 37. (Previously Presented) The supported or self-supporting electrochemical transistor device according to claim 1, wherein the solidified electrolyte is arranged in two separate electrolyte elements, a first electrolyte element being in contact with the first gate electrode a second electrolyte element being in contact with the second gate electrode.

Claim 38. (Previously Presented) The supported or self-supporting electrochemical transistor device according to claim 1, wherein the solidified electrolyte covers, at least partially, the first gate electrode, the second gate electrode, and the electrochemically active element.

Claim 39. (Previously Presented) The supported or self-supporting electrochemical transistor device according to claim 1, wherein solidified electrolyte is interposed between the first gate electrode and the electrochemically active element and between the second gate electrode and the electrochemically active ingredient.

Claim 40. (Previously Presented) The process for the production of a supported electrochemical transistor device according to claim 22, wherein the step of forming an electrochemically active element furthermore involves forming a redox

sink volume, and such that the first gate electrode is associated with and the second gate electrode is associated with the redox sink volume.

Claim 41. (Previously Presented) The process for the production of a supported electrochemical transistor device according to claim 22, wherein the step of forming solidified electrolyte involves forming two separate electrolyte elements, a first electrolyte element being in contact with the first gate electrode and a second electrolyte element being in contact with the second gate electrode.

Claim 42. (Previously Presented) The process for the production of a supported electrochemical transistor device according to claim 22, wherein the step of forming solidified electrolyte involves covering, at least partially, the first gate electrode, the second gate electrode, and the electrochemically active element with solidified electrolyte.

Claim 43. (Previously Presented) The process for the production of a supported electrochemical transistor device according to claim 22, wherein the step of forming solidified electrolyte involves arranging solidified electrolyte between the first gate electrode and the electrochemically active element and between the second gate electrode and the electrochemically active element.